

# Programming progress checklist

## Pedagogy

Gaining the kudos for having collected trophies/achievements is common place in console games today. It's a great incentive, and adds a layer of replay-ability into games. I experimented with putting that into my programming challenges to see what the effect would be on the learners. There is nothing to gain, other than the kudos of having accomplished something.

Surprisingly, adding in simple achievements and giving them names, had a dramatic effect on the student's productivity. They were already motivated to learn to code, but this added an extra, powerful incentive.

The idea is that the students date when they have completed the tasks and challenges in the programming companion on these checklists. The teacher then reviews just the programs completed for the achievements. The teacher then signs these to indicate they have been completed.

In addition the teacher may include additional formative assessment comments, such as, "comment the code more comprehensively", or, "use sensible variable names" etc. that they might want to see in future solutions.

Students are not expected to achieve every challenge, just enough so they feel confident using the commands they have learned. Targeting the achievements to particular challenges, focusses students on wanting to tackle them.

David Hillyard

## Programming Progress Checklist

Name:

Objectives & Achievements	Tasks & Challenges	Date Complete
Objective 1: Understand how to output text strings	Tasks	
	Visual dice challenge	
	ASCII art challenge	
Achievement: <i>I'm an artist</i>	ASCII Art challenge completed	
Objective 2: Understand how to input strings and numbers into variables	Tasks	
	Simple adder challenge	
	Test marks challenge	
	Temperature converter	
	Height & weight	
	Toy cars challenge	
	Fish tank volume	
	Circle properties	
Achievement: <i>All in hand</i>	All objective 2 tasks and challenges completed	
Objective 3: Understand string manipulation functions	Tasks	
	Initials & surname	
	Airline ticket	
	Name separator	
	Word extractor	
Achievement: <i>Lazy Dogs</i>	Name separator and word extractor challenges both working without help using left, right & len	

## Programming Progress Checklist

Name:

Objectives & Achievements	Tasks & Challenges	Date Complete
Objective 4: Understand how to use selection statements	Tasks	
	Water temperature challenge	
	Under age challenge	
	Vocational grade challenge	
	Extended visual dice challenge	
	Greatest number challenge	
Achievement: <i>I can do this</i>	3 difficulty 3 challenges completed	
	Nitrate challenge	
Achievement: <i>In the flow</i>	Greatest number and Nitrate challenges both completed	
	Portfolio grade challenge	
	Cash machine challenge	
	Periodic table challenge	
Achievement: $e=mc^2$	Portfolio grade and periodic table challenges completed	
	Train ticket challenge	
	Hours worked challenge	
Achievement: <i>9 to 5</i>	Hours worked challenge completed	

Feedback/Action from objective	Response seen in subsequent work

## Programming Progress Checklist

Name:

Objectives & Achievements	Tasks & Challenges	Date Complete
Objective 5: Understand how to use arithmetic operations and random numbers	Tasks	
	RPG dice challenge	
	Divisible challenge	
	Month challenge	
Achievement: <i>All things in moderation</i>	Month challenge fully working for days in February with leap years	
	Dice game challenge	
Achievement: <i>I'm in luck</i>	Dice game challenge completed	

Feedback/Action from objective	Response seen in subsequent work

# Programming Progress Checklist

Name:

Objectives & Achievements	Tasks & Challenges	Date Complete
Objective 6: Understand counter controlled iterations	Tasks	
	Square numbers challenge	
Achievement: <i>Full flow</i>	Square numbers challenge completed	
	9 green bottles challenge	
	Times table challenge 1	
	Fibonacci sequence challenge	
	Average calculator challenge	
Achievement: <i>Numbers Mason</i>	Average calculator or Fibonacci sequence challenge completed	
	FizzBuzz challenge	
Achievement: <i>Bucks Fizz</i>	FizzBuzz challenge completed	
	Times table challenge 2	
	ROT13 challenge	
	Letter game challenge	
Achievement: <i>Triple word score</i>	Letter game challenge completed	
Achievement: <i>Hail Caesar!</i>	ROT13 challenge completed	
Achievement: <i>Passing comment</i>	Programs are commented appropriately	
Achievement: <i>Register the birth</i>	Variable names are meaningful	

Feedback/Action from objective	Response seen in subsequent work

## Programming Progress Checklist

Name:

Objectives & Achievements	Tasks & Challenges	Date Complete
Objective 7: Understand condition controlled iterations	Tasks	
	Menu selection challenge	
	Compound interest challenge	
	Guess the number game challenge	
	Gamertag challenge	
	Rock, paper, scissors challenge	
	XP challenge	
Achievement: 10 <sup>th</sup> prestige	XP challenge complete	

Feedback/Action from objective	Response seen in subsequent work

## Programming Progress Checklist

Name:

Objectives & Achievements	Tasks & Challenges	Date Complete
Objective 8: Understand subroutines, procedures and functions	Tasks	
	VAT challenge	
Achievement: <i>Tax man</i>	VAT challenge completed using a function and parameter passing by value	
	Conversion challenge	
	Conversion challenge part 2	
Achievement: <i>Pinch an inch</i>	Conversion challenge completed with 4 conversions, each written as a subroutine/procedure or function	
	Darts challenge	
	Darts challenge part 2	
	Snake eyes challenge	
	Pass the pigs challenge	
	Pass the pigs challenge part 2	
	Pass the pigs challenge part 3	
Achievement: <i>Makin' bacon</i>	Complete parts 1, 2 and 3 of the pass the pigs challenge using subroutines/procedures/functions, appropriate variable names and comments	

Feedback/Action from objective	Response seen in subsequent work

## Programming Progress Checklist

Name:

Objectives & Achievements	Tasks & Challenges	Date Complete
Objective 9: Understand arrays and lists	Tasks	
	Text dice challenge	
	Notebook challenge	
Achievement: <i>In my book</i>	Notebook and text dice challenge both completed	
	Currency converter challenge	
	Battleships challenge	
Achievement: <i>That's a hit!</i>	Battleships challenge 1 complete	
	Battleships challenge part 2	
	Battleships challenge part 3	
Achievement: <i>A game for two</i>	Battleships challenge part 3 complete	
	Battleships challenge part 4	
	Battleships challenge part 5	
	Battleships challenge part 6	
Achievement: <i>Bragging rights</i>	All Battleship challenges complete	

Feedback/Action from objective	Response seen in subsequent work



## Programming Progress Checklist





Name:

Objectives & Achievements	Tasks & Challenges	Date Complete
Objective 10: Understand serial files	Tasks	
	Quote of the day challenge	
	Quote of the day challenge 2	
	Product catalogue challenge	
	Product catalogue challenge 2	
	Product catalogue challenge 3	
Achievement: <i>EAN13</i>	Product catalogue challenges complete	
	Quiz challenge	
	Quiz challenge 2	
	Quiz challenge 3	
Achievement: <i>Quiz master</i>	Quiz challenges complete	
	Till challenge	
Achievement: <i>Game over</i>	Till challenge complete	

Feedback/Action from objective	Response seen in subsequent work

## Programming Progress Checklist

Name:

Objectives & Achievements	Tasks & Challenges	Date Complete
Objective 11: How to handle exceptions for validation and more challenges	Tasks	
	Change calculator challenge	
	Parser challenge	
	Blackjack challenge	
	National lottery challenge	
	London Underground challenge	
	Mayan calendar challenge	
Achievement: <i>Final boss</i>	2 difficulty     challenges completed from more challenges	